

Biological Analysis Report

CEN-DIST-2018-07-31-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Overflow Analyses Performed By:
Flowers Chemical Laboratories Inc. - Altamonte
Springs
481 Newburyport Avenue
Altamonte Springs, Florida 32701
DOH Accreditation E83018

Event Description: **Lk Greenwood X3 / McCoy X4 / Searcy**
Request ID: **RQ-2018-07-30-32**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 21-AUG-2018 14:31



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Chlorophyll/Grain Size/BOD and Overflow.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Greenwood Lake West Lobe @ 110m N of Reflection Park Boat Ramp

Collection Date/Time: 07/30/2018 10:42

Field ID: G2CE0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011905	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	77.6		MPN/100 mL		
2011913	SM 10200 H (mod.)	Chlorophyll-a, Corrected	35		ug/L	P349559	
		Phaeophytin-a	4.0		ug/L	P349559	
		Chlorophyll-a, Uncorrected	39		ug/L	P349559	

Sample Location: Greenwood Lake West Lobe @ 250m SW of Center

Collection Date/Time: 07/30/2018 10:30

Field ID: G2CE0136

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011906	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	22.6		MPN/100 mL		
2011914	SM 10200 H (mod.)	Chlorophyll-a, Corrected	36	A	ug/L	P349559	
		Phaeophytin-a	4.5	A	ug/L	P349559	
		Chlorophyll-a, Uncorrected	40	A	ug/L	P349559	

Sample Location: Greenwood Lake West Lobe @ Center

Collection Date/Time: 07/30/2018 10:20

Field ID: G2CE0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011907	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	36.8		MPN/100 mL		
2011915	SM 10200 H (mod.)	Chlorophyll-a, Corrected	40		ug/L	P349559	
		Phaeophytin-a	5.8		ug/L	P349559	
		Chlorophyll-a, Uncorrected	45		ug/L	P349559	

Sample Location: Lake Searcy @ Center

Collection Date/Time: 07/30/2018 12:10

Field ID: G2CE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011912	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	12.2		MPN/100 mL		
2011920	SM 10200 H (mod.)	Chlorophyll-a, Corrected	48		ug/L	P349606	
		Phaeophytin-a	7.9		ug/L	P349606	
		Chlorophyll-a, Uncorrected	54		ug/L	P349606	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Lake McCoy @ 220m SW of Center of Southern Lobe

Collection Date/Time: 07/30/2018 13:35

Field ID: G2CE0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011908	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1.00		MPN/100 mL		
2011916	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P349606	
		Phaeophytin-a	0.60	I	ug/L	P349606	
		Chlorophyll-a, Uncorrected	13		ug/L	P349606	

Field ID: G2CE0144

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Lake McCoy @ 245m NE of Center of Southern Lobe **Collection Date/Time: 07/30/2018 13:18**

Field ID: G2CE0145

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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2011909	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1.00	U	MPN/100 mL		
2011917	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P349606	
		Phaeophytin-a	0.65	I	ug/L	P349606	
		Chlorophyll-a, Uncorrected	14		ug/L	P349606	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Lake McCoy @ Center of North Lobe **Collection Date/Time: 07/30/2018 13:57**

Field ID: G2CE0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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2011910	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1.00		MPN/100 mL		
2011918	SM 10200 H (mod.)	Chlorophyll-a, Corrected	18		ug/L	P349606	
		Phaeophytin-a	0.60	I	ug/L	P349606	
		Chlorophyll-a, Uncorrected	20		ug/L	P349606	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: Lake McCoy @ Center of Southern Lobe **Collection Date/Time: 07/30/2018 13:27**

Field ID: G2CE0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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2011911	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	1.00	U	MPN/100 mL		
2011919	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P349606	
		Phaeophytin-a	0.40	U	ug/L	P349606	
		Chlorophyll-a, Uncorrected	12		ug/L	P349606	

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P349559

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P349606

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P349559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.0		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P349606

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	99.1		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P349559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011914	Chlorophyll-a, Corrected	15.0	Sample	P	0 - 25
2011914	Chlorophyll-a, Uncorrected	15.6	Sample	P	0 - 25
2011914	Phaeophytin-a	24.7	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P349606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012025	Chlorophyll-a, Corrected	5.63	Sample	P	0 - 25
2012025	Chlorophyll-a, Uncorrected	3.60	Sample	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	91.0			15.0	
	Chlorophyll-a, Corrected	99.1			5.63	
	Chlorophyll-a, Uncorrected				15.6	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Uncorrected				3.60	
	Phaeophytin-a				24.7	

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2011913, 2011914, 2011915, 2011916, 2011917, 2011918, 2011919, 2011920
SM 9223 B Quanti-Tray / E83018	Escherichia coli by Colilert 18 Quanti-Tray method by Flowers Chemical Laboratory in Altamonte Springs	2011905, 2011906, 2011907, 2011908, 2011909, 2011910, 2011911, 2011912

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	07/31/2018	07/31/2018 12:03	Mariam Hanna	08/01/2018 15:30	Carina A. Tull	2011913, 2011914, 2011915
	07/31/2018	07/31/2018 12:03	Mariam Hanna	08/02/2018 16:15	Carina A. Tull	2011916, 2011917, 2011918, 2011919, 2011920
SM 9223 B Quanti-Tray	07/30/2018	07/30/2018 16:25		07/31/2018 10:31	Flowers - Altamonte Springs	2011905, 2011906, 2011907, 2011908, 2011909, 2011910, 2011911, 2011912